# DISTRO

032213 #83

engadget

First Impressions of the Galaxy S 4

Engadget Expand in Pictures

**PLUS**
Q&A With Our Insert Coin Contest Winner

# IS THIS THE FUTURE OF GAMING?

## Oculus, Valve and a Shared Vision of Virtual Reality


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# ISSUE 83



## ENTER



## FORUM



## REVIEWS



## FEATURES



## ESC



*On the Cover:*
Photograph by Michael Clinard for Distro

# WHO CARES FOR THE UNCARRIER?

DISTRO
03.22.13

EDITOR'S LETTER

**IT SEEMS LIKE A YEAR AGO** already, but it's been only a few days since we wrapped up our inaugural Engadget Expand event. If you weren't able to join us in person, you missed a seriously good time. Attendees got to take a ride in a Tesla Model S, perform surgery using a da Vinci robotic surgery system and cruise around the show floor on the San Francisco Special edition of the electric ZBoard, which made its debut at the show.

Up on stage we had conversations with... well, too many people to list, but highlights for me were conversations with Kickstarter co-founder Yancey Strickler, OUYA CEO and Founder Julie Uhrman and a panel that featured Veronica Belmont, *Robopocalypse* author Daniel H. Wilson and John Scalzi, president of the Science Fiction and Fantasy Authors of America. Oh, and there was also that time I bet Gene Munster $100 (to charity) that we won't see an Apple-branded TV by the end of the year.

Think I'm going to win?

It was a pretty great time, and if you missed it, don't fret. We'll give you a little retrospective in this issue, but more importantly, there'll be another chance to see it for yourself when we hold another Engadget Expand event in New York City in Q4. This one will be even bigger.

And with that I think you're officially done with having me go on and on about Expand. Moving on to the broader world of tech news, Google unveiled its Keep service, a bit of a replacement

> "Sony unveiled a pair of new Xperia devices, neither aiming for the heights of the Z."

for the now retired Notebook. Keep is more directly targeting Evernote with the ability to store multiple kinds of content and aggregate it together as individual notes, and it should come as no surprise that everything gets stored in Google Drive.

T-Mobile is holding an event next week, and we know at least one thing Big Magenta will be talking about: formalizing its plans to become the UNcarrier. This means month-to-month plans featuring unlimited texting, unlimited voice and unlimited data — though the default plans starting at $60 would have only 500MB of data. Going truly unlimited across the board steps things up to $90 monthly, which is considerably cheaper than competing plans from AT&T and Verizon.

Of course, those plans include subsidized phones and contracts, the sort of things American consumers have come to expect. T-Mobile thinks it's time to get rid of all that mess, and I definitely agree. But will competitive pricing be enough to make up for what is a network offering less coverage and speed than the competition? We'll find out next week when they announce the plans — and maybe some other surprises, too.

Sony unveiled a pair of new Xperia devices, neither aiming for (or reaching) the heights of the Z. Instead, Sony is filling out its lower-cost devices, starting with the Xperia L. This is a budget-friendly 4.3-inch device with 8GB of (expandable) internal storage and an 8-megapixel camera. Then there's the Xperia SP, which (wait for it) offers a blend of the previous Xperia S and Xperia P. It's a 4.6-inch device packing a similar 8-megapixel camera triggered by a discrete shutter release button. No word on US availability for either, but we wouldn't recommend anyone holding their breath.

Samsung's mobile executive VP Lee Young Hee confirmed that the company is working on a smartwatch of some sort, saying, "We are preparing products for the future, and the watch is definitely one of them." That

# "It's THX playing the role of plaintiff, suing Apple for a speaker patent..."

all sounds shocking enough — until you realize Samsung has already made such intelligent timepieces in the past, such as 2009's S9110. This, then, would be less a new direction and more a reboot.

Finally, Apple's gone and got itself embroiled in another bit of patent litigation, this time on the receiving end of a lawsuit. It's THX playing the role of plaintiff, suing Apple for a speaker patent that describes narrow-profile speakers with skinny outlets — exactly the kind used in the latest rendition of the iMac. Not a lot of detail at this point, but we wouldn't be surprised if this trial — like so many other unfortunate patent spats — gets settled out of court.

In this week's Distro we'll be taking you back to the weekend that was at Expand, sharing some stats and photos from the show floor. Additionally, we have Joe Pollicino's review of the Turtle Beach Ear Force XP Seven Series, a headset with an entirely too-long name, and Joseph Volpe's early impressions of the Samsung Galaxy S 4. We'll take you on a trip to Oculus VR HQ to take a peek at the Rift dev kits and chat about what's next for the resurgence of virtual reality. We'll also take a look at how Valve plans to use the headset. Switched On takes a look at the perils of crowdfunding, Modem World examines the transience of currency and we sit down for a Q&A with the winner of our first-ever Insert Coin: New Challengers competition, Azorean CEO Edmundo Nobre. Now, it's time to kickstart your weekend. Enjoy. D

TIM STEVENS
EDITOR–IN–CHIEF,
ENGADGET

# META-PRINTING, NEURO-TAGGING AND SMS HABITS

Touch article names to read full threads

DISTRO 03.22.13

INBOX


GIGABOT 3D PRINTER
ISSUE 82,
MARCH 15TH, 2013

"This printer should be able to print another printer, no?"

— UNFORGIVEN2

NEUROWEAR
MICO HEADPHONES
ISSUE 82,
MARCH 15TH, 2013

"Personally, instead taking a crapshoot at 'mood detecting and tagging,' I would rather get them to concentrate on detecting if you wanted to skip, pause, stop… much more practical and useful."

— VORADOR2

"I have been looking forward to 'neuro-tagging' the internet for the past decade. Let's make this happen, NAO!"

— SHANTA STEVENS

CHROME ON THE RANGE
ISSUE 82,
MARCH 15TH, 2013

"The Pixel is meant to show off Chrome OS in its

best technical light, and to serve as a high-end reference standard for future (and more affordable) Chromebook models to come. I doubt Google expects nor has planned to sell many of these."

— ANGRYFLUTE

"If I'm looking to move to a web-centric lifestyle I'd still buy a MacBook Air or a Windows laptop. Chrome is a dead product at that price. It's a Pinto with a Mercedes body."

— WANSAIOUNKEO

### WHY ARE WE STILL TEXTING?
ISSUE 82,
MARCH 15TH, 2013

"The article is correct on that one point. The carriers have us addicted to a form of communication that costs almost nothing for them to implement, run and maintain on a daily basis. It's cheap on their end to run, yet they make good $$ off of it. They got the upper hand on this one."

— RJC

### TiVo MINI
ISSUE 82,
MARCH 15TH, 2013

"Sounds like a solution looking for a problem."

— CHINEDUOPARA

"What TiVo really needs to do is stop charging for what they call 'service.' The day they do that is the day they will get my business, but not until then."

— JIMV1983

"Because SMS is universal — I don't need to figure out which app to use. Sure when you scale data up to price per GB, it's going to be expensive. But who sends a gig worth of texts?"

— JOERUD

# ENTER

EYES-ON

DISTRO
03.22.13

## CONNECTED DATA TRANSPORTER


**DAPPER SOCIAL STORAGE**
The folks with the storage chops behind devices for Drobo have Kickstarted a peer-to-peer social storage unit with a rather unique form factor. The Transporter touts the ability to connect to the same gadget at your mate's flat and syncs files only with those who possess a proper invite. Sure, the functionality sounds great, but the file vault sports some handsome aesthetics as well.

**THE DAMAGE: $199-$399**

PHOTOGRAPHS BY WILL LIPMAN

# ENTER

EYES-ON

DISTRO
03.22.13

## CONNECTED DATA TRANSPORTER

**FILE FUNNEL**

Most external storage repositories are squared off and rather brick-like. That's not the case here as a funnel / capsule-shaped shell protects all of those precious files in a rather attractive package.

PHOTOGRAPHS BY WILL LIPMAN

# ENTER

EYES-ON

DISTRO
03.22.13

## CONNECTED DATA TRANSPORTER


**POP TOP**
The upper housing separates from the base to reveal the drive cradle, allowing for painless swapping out of old 2.5-inch HDDs for fresh new internals with no cables or tiny connectors to futz with.

PHOTOGRAPHS BY WILL LIPMAN

# ENTER

EYES-ON

DISTRO
03.22.13

## CONNECTED DATA TRANSPORTER

**STATUS UPDATE**
A multi-colored LED ring encircles the base of the Transporter and communicates status info for data transfers, disk space and internet connectivity — offering a visual indicator right on the storage unit.

PHOTOGRAPHS BY WILL LIPMAN

Click on product names to read full stories

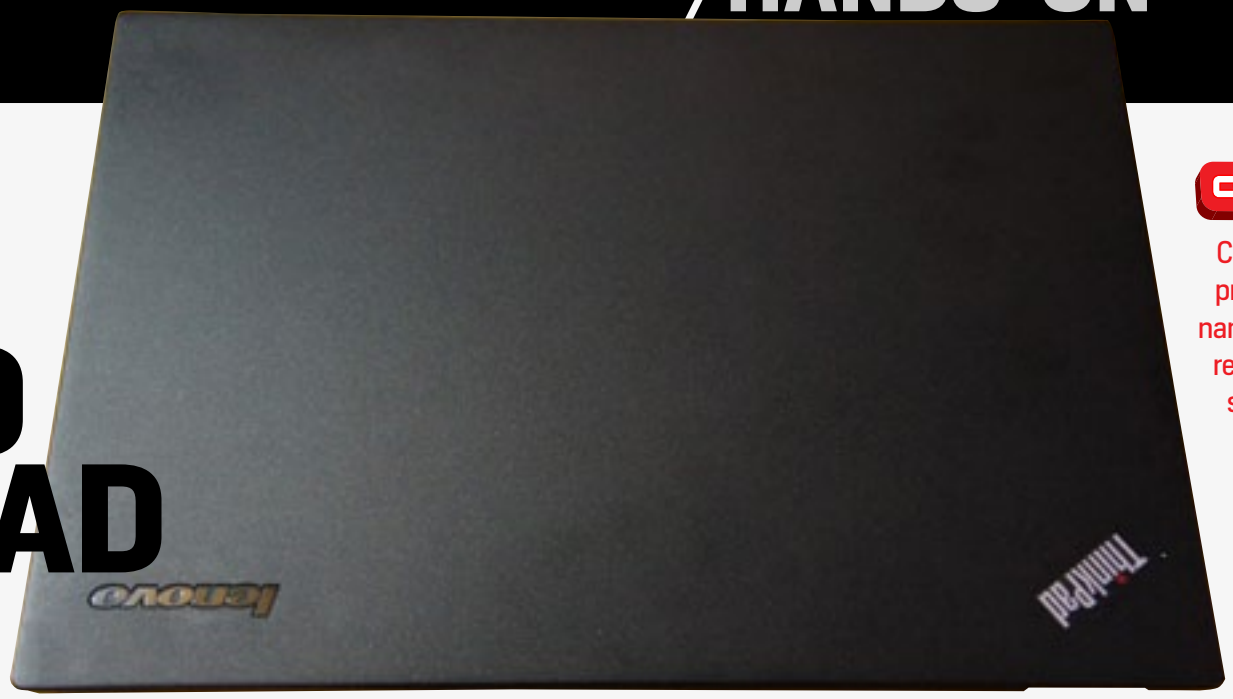
**PRICE:**
$999
**AVAILABILITY:**
APRIL 2013

**THE BREAKDOWN:**
WACOM'S NEW 13-INCH GRAPHICS DISPLAY LACKS TOUCH GESTURES, BUT TACKS ON A NEW PRO PEN.

# WACOM CINTIQ 13HD

**Here's the thing** with Wacom's latest Cintiqs: the bigger the display, the more straightforward the buying decision tends to be. The Cintiq 22HD and 24HD dominate at the professional high-end, but, as you get smaller and cheaper, more options come into play. However, if you're looking for full-fledged Cintiq qualities in a smaller package, then the $1,000 Cintiq 13HD probably caught your interest. Starting with the tablet itself, it's surprisingly light and easy to hold. The new 1,920 x 1,080 display makes things look small onscreen, but the pen has Wacom's usual accuracy so we didn't struggle to hit controls. Also, if you have a nice big primary display, you might want to continue using that for controls and just use the 13-incher for drawing.

The physical controls on the right should be instantly familiar. They require some serious bezel, but the pen-sensitive area is still much larger than the Intuos5, which outwardly has the same dimensions. A proprietary cable containing HDMI video, power and USB data juts out of the side and it could potentially be a hindrance. We've got to ask, though: where's some high-bandwidth 60GHz wireless connectivity when you really need it? The stylus brings a new feel, but it'll work with other current Cintiqs as well as with Intuos tablets back to the Intuos4. Rather than coming with some kind of travel holder to connect it to the tablet, the "Pro Pen" comes in its own travel box with a selection nibs and color-coding rings.



Click on product names to read full stories

# LENOVO THINKPAD T431S

**Lenovo took the wraps** off of its newest ThinkPad at Engadget Expand, but in fact, the T431s represents more than just a minor spec bump. It's actually the first ThinkPad borne out of Lenovo's latest "clean sheet" development initiative — an 18-month process that the company briefed us on. The T431s is being classified as an Ultrabook, yet it still meets the Mil-SPEC 8 standard for rigidity and durability. As for specs, it's rocking a 1,600 x 900 matte display with 250 nits of brightness, integrated Intel HD graphics, 4GB of RAM (supports up to 12GB), Bluetooth 4.0 and built-in support for both WiFi and WWAN connections. It measures in at 13.03 x 8.89 x 0.8 inches while weighing 3.6 pounds, and it's easily one of the sturdiest Ultrabooks we've had the pleasure of wrapping our paws around.

Around the edges, you'll find a full-size Ethernet port, a VGA socket, 0.5mm headphone / microphone combo jack, a pair of USB 3.0 sockets, 4-in-1 SD card reader. The base unit ships with a 320GB hard drive, though big spenders can opt for a variety of SSDs. It'll ship with your choice of Windows 7 or Windows 8, and we're told that T431s models with touch panels will be on the horizon. As for the power plant? The base rig ships with a 1.8GHz Intel Core i5-3337U, while a Core i7 is available for the speed freaks. Perhaps the most notable change is the trackpad situation — gone are the physical click buttons, and in is a custom-built alternative for which Lenovo and Synaptics took some two years to hammer out the drivers to support up to 20 different gestures.

**PRICE:** $949

**AVAILABILITY:** APRIL 2013

**THE BREAKDOWN:** A SLIMMED-DOWN, REDESIGNED 14-INCHER RETAINS THE EXPECTED THINKPAD DURABILITY.

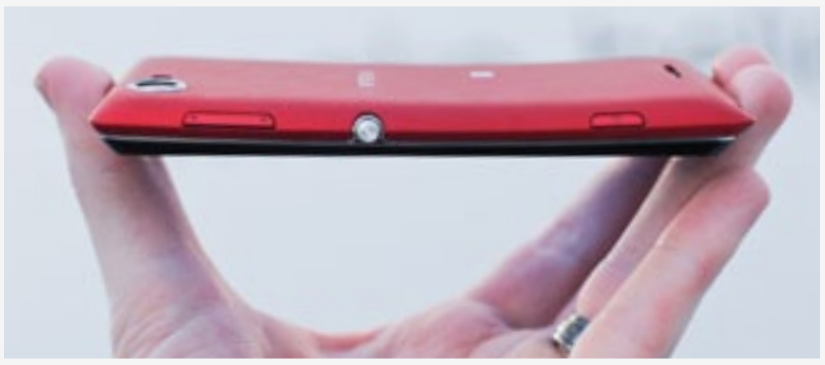
# SONY XPERIA SP


Click on product names to read full stories

**PRICE:** TBD

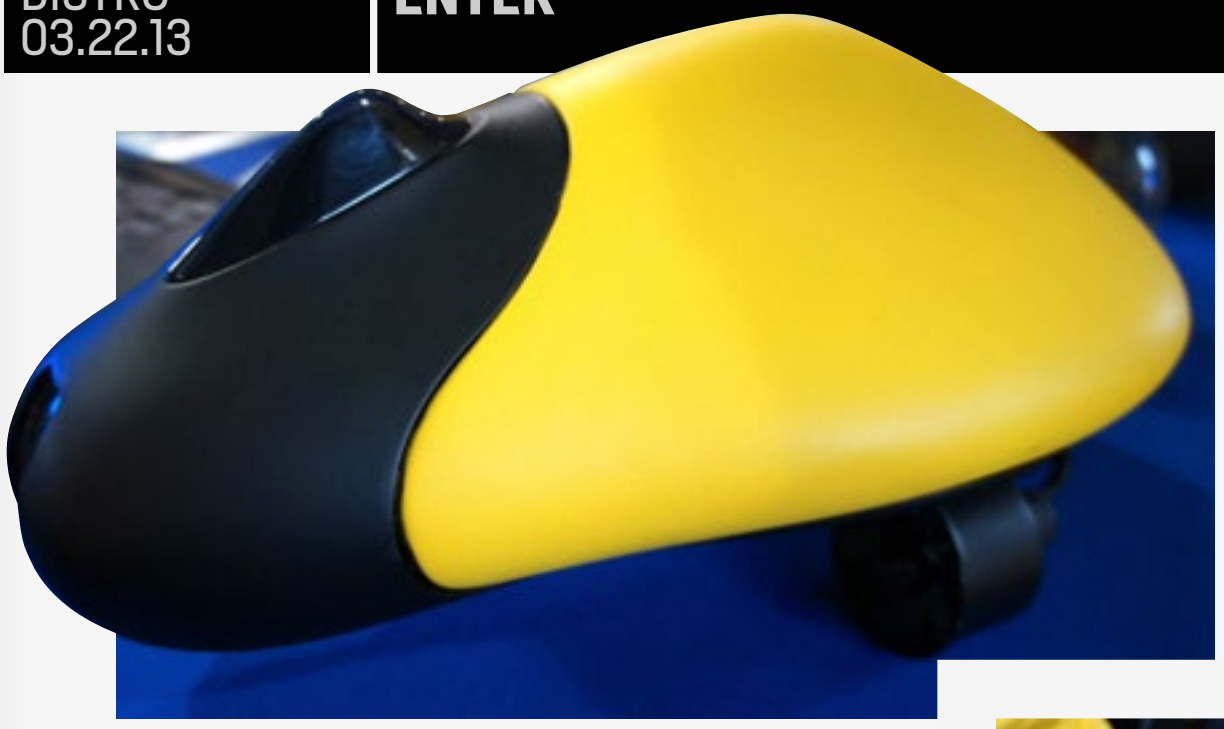
**AVAILABILITY:** Q2 2013 (ASIA & EUROPE)

**THE BREAKDOWN:** SONY'S MID-RANGE OFFERING TOUTS A MIX OF THE 2012 S AND P HANDSETS WITH A RETOOLED NOTIFIER.



**While the Sony's Xperia Z** tablet and smartphone occupy its high-end Android selection, it's now the turn of the middleweights. Say hello to the Xperia SP, a 4.6-inch phone that ties together some of the features (and design cues) from both the S and P models of 2012. Alongside a 720p screen with Sony's Bravia Mobile Engine 2, there's an 8-megapixel Exmor RS sensor on the back, NFC, LTE and a dual-core 1.7GHz Snapdragon MSM8960 Pro processor. That's all built into a classy aluminum frame that's just shy of 10mm thick and weighs 5.5 ounces. The phone marks the return of Sony's see-through strip, but with a slightly more advanced (and customizable) notification light built into it.

The standout feature for us was the return of the notification light, which can now do a little bit more in this new frame. When you're playing music content, not only will the lighting (roughly) match the album artwork, but it'll also pulse in time to the music, like an off-screen equalizer graphic. While the Xperia SP is perhaps not as eye-catching as the Xperia Z, the smooth unibody has a charm that's all its own — and this model comes with a physical camera button, if that was a dealbreaker on the 5-inch flagship. Software-wise, the phone is running Android 4.1.2 with that familiar Xperia seasoning, including plenty of the new additions seen in the Xperia Z. The camera app includes the new auto+ setting, which will toggle HDR and other settings to improve your images, depending on the lighting environment. Oddly, the phone isn't able to capture HDR video, even though the lesser-specced Xperia L can.



# ZIPHIUS

Click on product names to read full stories

**PRICE:** $200–$250

**AVAILABILITY:** TBD

**THE BREAKDOWN:** THE WINNER OF THE FIRST INSERT COIN COMPETITION TAKES DRONE FUNCTIONALITY TO THE SEAS.

**Joining the handful** of Insert Coin finalists at Expand was Azorean's cute Ziphius aquatic drone. While Fort Mason is located by the seaside, the folks actually brought their own little pool along to let their Raspberry Pi-powered robot splash around in; though it can happily operate in seawater as well and thus adds more use case possibilities — be it for entertainment (including autonomous ball-chasing, for instance) or for environmental monitoring. Through a direct WiFi connection we were able to use an Android tablet to control both the Ziphius' surprisingly powerful motors and its camera's vertical position, as well as watching a live video feed at the same time.

The final version of the drone will come with an interchangeable chassis to suit different purposes or simply for personalization, and internally it'll be equipped with Raspberry Pi's upcoming high-quality camera module, which will enable even better streaming and onboard 1080p 30 fps capture. According to CEO Edmundo Nobre, the Kickstarter campaign will launch before the end of the month, and he's hoping to bring the Ziphius to the mass market priced at around $200 to $250. Not bad, huh? D

# Expand SF by the Numbers

**We're back** from yet another event, but this one's a bit dearer to our hearts. Engadget's first Expand event was held at Fort Mason in San Francisco last weekend and we've got some details.

**50,000 Sq. Ft.**
Festival Pavilion Event Space

**32x18 Ft.**
Main Stage Screen

**16x9 Ft.**
Secondary Screens

**Fifty-Two**
Guest Speakers

**Eight**
Shuttle Buses

**1,965**
Registered Attendees

**Forty-Two**
Exhibitors

**34**
Engadget Editors

**64**
Prize Giveaways

**14**
Expand Liveblogs

**67**
After-party Arcade Games


PHOTOGRAPH BY SEAN BUCKLEY


# Present Shock

By Douglas Rushkoff
*Current*

**The title of Douglas** Rushkoff's latest book is both a not-so-subtle reference and counterpoint to Alvin Toffler's famous bit of '70s era futurism, *Future Shock* — a suggestion that while we've been spending the decades since trying to predict the future, we've failed to observe how our relationship to the present has changed. With *Present Shock*, Rushkoff attempts to explain just that — what happens when everything happens now, as he puts it. Connecting the dots from the Occupy and Tea Party movements to 24-hour news cycles and even to our current fascination with zombies (and far more examples in between), he makes a convincing case that we are living more in the present than we have before, and that we aren't always adjusting well to it.

We've been "overwinding" ourselves, as Rushkoff explains in one of the five sections that divide the book, but he doesn't conclude that we should tune out and disconnect from the technology that makes it easier than ever for that wind-up to take place. Instead, much of what he focuses on boils down to the simple issue of balance. We should "program our technologies to follow our own paces," and "learn to spring-load without overwinding." Sound advice for any time, but perhaps now more than ever. — *Donald Melanson*

Click on headlines to read full stories

**The End of the Hangup**
By Ian Bogost
*The Atlantic*
There's no question that smartphones have profoundly changed the telephone, but some of those changes are less obvious than others. In this essay for *The Atlantic*, Ian Bogost reflects on one of those changes that hasn't necessarily been for the better: the loss of a satisfying way to hang up on someone.

**Why I Hacked Donkey Kong for My Daughter**
By Mike Mika
*Wired Gamelife*
Regular Engadget readers may well have already heard of the recent *Donkey Kong* hack that turned the tables and put Pauline in the hero's role instead of Mario, but even if you have, it's worth taking a moment to read this short essay from the dad in question, Mike Mika, explaining how and why he did it.

**Film Restoration In The Digital Domain: A Chat With James White**
By Glenn Kenny
*Some Came Running*
Considerable gains have been made in film restoration with the advent of new technologies, but those have also introduced some new sets of challenges. Here, film critic Glenn Kenny talks to famed restoration supervisor James White about some of those, including the difference between restoring a movie like *The Passion Of Joan Of Arc* and one like *Zombie Flesh Eaters.*

# Let's Go Places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# HIGHER STAKES, HIGHER GROUND FOR CROWDFUNDING: PART 1

DISTRO
03.22.13

FORUM

SWITCHED ON

BY ROSS RUBIN

**THE POWER OF CROWDFUNDING** is that, by aggregating relatively modest donations from what is often hundreds or even thousands of backers, consumers can help artists and inventors turn ideas or concepts into reality. The Pebble smartwatch that set the record for funds raised on Kickstarter was noteworthy for breaking the $10 million barrier. That money, though, came from nearly 69,000 backers.

Today, the two biggest crowdfunding destinations, Indiegogo and Kickstarter, offer different approaches to what gets presented on their sites. Indiegogo is a completely open site; there is virtually no screening of projects. Kickstarter, on the other hand, is a curated site. Projects must meet a range of criteria. As co-founder Yancey Strickler recently explained at Engadget Expand, the roots of Kickstarter were in the funding of creative and social pursuits. Kickstarter has been a haven for artists such as photographers looking to create a photo book or musicians seeking to cut a first album or create a music video.

Over time, though, through escalating successes such as the Glif iPhone tripod accessory, the Twine connected sensor and the Elevation Dock all preceding the Pebble tsunami, Kickstarter started to become better known for physical prod-

"The roots of Kickstarter were in the funding of creative and social pursuits."


The Pebble smartwatch showing off its Text Watch face.

ucts and the pre-orders that came as perks for backing them. Tech and design projects now account for nearly $120 million of the $532 million raised via the site. Eventually, though, the question of liability came into focus; what happens if a backer doesn't receive the item they were promised?

On one hand, Kickstarter has taken measures to protect consumers by disallowing photorealistic renders that would imply a product is further along than it actually is. It has also disallowed ordering multiple units of a product (although certain projects have found ways around that) and that restriction may not make sense in some cases such as, say, a pair of video chat cameras. On the other hand, it has steadfastly insisted that it is not a store. Indeed, it points to such laudable projects such as a low-cost, wind-powered land mine detonator — not exactly the kind of thing one would pick up on the next Target run (even on sale).

Still, that is cold comfort for the backers of products such as the iCache Geode, a strange and ambitious iPhone contraption combining NFC and e-paper with a reprogrammable credit card that was floated last April. The project blew past its $50,000 funding goal, raising over $350,000 and units were to be delivered in June. Some of the nearly 1,800 backers received their units to mixed reviews. Many others did not. The project's comments section is filled with angry statements from backers who had paid $159 for the product

(with five backers purchasing "reseller packs" for $7,500), many of whom feel they have no recourse. As one noted last month, "I wish someone would just say, 'Look, this didn't work out, so go [bleep] yourselves.' We've just been left hanging, which sucks the most."

Other long-delayed tech projects include the Syre, a Bluetooth wristband adapter for the now long-discontinued sixth-generation iPod nanos originally due to ship last November. A recent update from the project's creators note that "we are unable to issue refunds in advance of finishing the project, as that would jeopardize the completion of the entire endeavor" although they will look into refunds prior to shipment.

Jorno, a promising folding Bluetooth keyboard, first saw public light back at the Consumer Electronics Show in 2011. It had a successful Kickstarter campaign last October after its creator, Cervantes Mobile, had initially indicated the product had been scuttled. In early February, though, the company noted only that there had been "a problem with our supplier" that would result in further delay. The update elicited frustration for its lack of specifics. The company followed up later that month with a new schedule that pegged the release of the product as September, assuming the deal with its new manufacturing partner could proceed quickly.

That many first-time — and even some experienced — gadget creators should experience problems and challenges navigating the rough terrain of product development and manufacturing is not surprising. While Kickstarter and other crowdfunding sites have attracted their share of established, or at least venture-backed, companies, there's a fair share of amateur hour on display.

The question of uncertain reputations and the potential fraud haunted another startup that pioneered a new marketplace many years ago: eBay. The company insisted it was not liable for transactions between those who bought and sold products. Ultimately, however, and particularly after it acquired PayPal so it could control the cash flow, eBay changed its tune. Indeed, PayPal is now often the target of frustrated eBay sellers who say that the company is too quick to pull the trigger on refunds on behalf of buyers.

Kickstarter says that it will take further measures to protect consumers. It's guiding philosophy, though, is to help educated adults best assess their risks. With their transactions falling somewhere in the gray between purchases and investments, crowdfunding sites may not be stores the way an Amazon.com is. But they are absolutely creating marketplaces. Next week's Switched On will discuss some options emerging in the wake of crowdfunding's laissez-faire. D

# THE INTERNET MAY BE KILLING CASH

DISTRO
03.22.13

FORUM

THIS IS THE MODEM WORLD

BY JOSHUA FRUHLINGER

**WE WORSHIP MONEY.** It can be exchanged for life-sustaining stuff, makes us powerful and drives us to make new things. It also drives us to do some very strange stuff, but that's a subject for another day and place. You may not bow to the altar of the dollar, but you certainly recognize the need to have some in order to survive.

While we adore money as a society, its time may be limited as a currency, and the internet may be to blame. Money wasn't always king. Before we traded cash, we exchanged gold, cows, clamshells, rice, copper, tea leaves and even bat guano. At some point in those currencies' lives, people determined that there were other things worth more and moved on to trade those.

Today, denizens of the internet are increasingly hoarding other currencies. We — or at least some of us — obsess over a whole new kind of currency that, in some cases, doesn't even translate to real-world money.

On social networking sites, one is measured by how many friends, connections and followers he has. To those who care, possessing many online friends makes one appear popular, powerful and interesting.

On Twitter, having a large following means that what you have to say is very important — or you're really hot. Or you paid someone to get you followers. In any case, Twitter followers, as a number, has become an incredibly important number. It's abstract, and we're still not sure what to do with it, but we care. We feel good when we see "You have new follow-


Bill Gates started off his Reddit AMA with a bit of art.

PHOTOGRAPH COURTESY OF BILL GATES / REDDIT

“If you’re one of the few who doesn’t care, there are plenty behind you who do.”

ers!” emails, and we feel empty when we see that people have un-followed us. We’re impressed when we see people with millions of followers. Entire industries have formed just to create Twitter momentum for celebrities and businesses. Followers are bought and sold with real money. For better or worse, we care. And if you’re one of the few who doesn’t care, there are plenty behind you who do.

On user-generated sites like YouTube, one is measured by how many subscribers he has. YouTube stars are crossing over into mainstream because they’ve become internet famous. In 2010, Fred, a YouTube vlogger who pitches up his voice and does silly things that half of us can’t quite figure out, was given a Nickelodeon movie deal. Meanwhile, view counts for music videos are now included in Billboard’s metrics. YouTube’s viewership, according to *Wired*, now exceeds that of ABC, CBS and NBC combined during prime time. New businesses designed to just create content for YouTube and create subscriptions are going through impressive rounds of funding.

Meanwhile, in modern communities

> “Get your client’s AMA to the front page and you’ve done your job, cash or none.”

like Reddit and Digg, one is measured by his social karma, or how many times his comments have been up-voted. In short, one is measured by how much he has contributed. Reddit has become so important in online social currency that Bill Gates, Al Gore and many others have done special AMAs (Ask Me Anything) as a measure of community contact. Society’s current power-holders are already recognizing how important it is to participate in these new social networks. The success of these small campaigns is measured not by how much money they make but by how far the AMA has been up-voted. Get your client’s AMA to the front page and you’ve done your job, cash or none.

Sure, all of these things ultimately translate to business plans that turn into real, hard cash. After all, humans still need to buy food and shelter. But this is the first time we’ve quantified — and measured — social worth via followers, friends and subscriptions. These things are real currency: they get you more stuff, and sometimes they’re the most efficient way to get yourself some moolah.

But are they powerful enough to usurp cash-money as the be-all currency that moves modern society? Will there be a point in which someone will say to another, “Keep the cash. Get me more followers”? Will we one day be able to buy things with something other than dollars and yen?

Certainly barter deals are made now that involve traffic exchanges, social networking pickups and the like, but they’re usually ultimately tied to page views and ad revenue that become real money. At some point, though, we may determine that those extra followers are enough currency in that they give us the ability to exchange that online social pull for other services.

It’s not a completely crazy concept. After all, we’ve moved past bat guano. Certainly we could move past cash. In many ways we already have, and the more we apply numbers to our online social success, the more we’ll value it.

# REVIEW

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03.22.13

## CONTENTS


Samsung Galaxy S 4 Preview


Turtle Beach Ear Force XP Seven Series

PREVIEW

# SAMSUNG GALAXY S 4


**A brief visit with the Galaxy S 4 reveals familiar hardware and a host of new features**

By Joseph Volpe

**You say you want a revolution?** Too bad, because this Galaxy smartphone update is just that... an *update*. Samsung's newly unveiled Galaxy S 4 is an incremental step up, an evolution less "inspired by nature" and more by last year's GS III. Don't believe us? Just take a look at the two handsets side by side to see the overtly obvious heritage. Samsung's staying the course with the overall design language, though it's expanded the screen size to five inches — now powered by a Full HD Super AMOLED display with 441 ppi (and yes, it's still PenTile).

On the inside, it has a processor setup that we're told will be either an Exynos 5 or Snapdragon depending on the region, along with 2GB of RAM; 16, 32 or 64GB of internal storage; a 13-megapixel, rear-facing camera; and a 2,600mAh battery. Starting to see the bigger picture here? Samsung had a good thing on its hands with the GS III and it's not willing to compromise much of the tried-and-true with the GS 4. It will launch globally in Q2, with a stateside debut on T-Mobile, AT&T, Sprint, Verizon, US Cellular and Cricket.


A familiar exterior wraps the frame of the GS 4 (front).

## HARDWARE

You can take a look at our shots to confirm the comparison for yourselves, but suffice to say the key design language should seem pretty familiar. It's an intentionally plainer take on its predecessor, one that sees those formerly rounded edges ironed out in favor of a flatter silhouette. Its bezel has been reduced greatly, too, though you still won't find any hard angles. We can only presume Samsung did this to reinforce the device's sleeker 7.9mm thickness (versus 8.6mm on the GS III) since at 130 grams there's no tangible change in the weight. All of which means it feels great in the hand — sturdy even — and shouldn't strain your palm despite the marginally larger 5-inch screen.

HTC can proudly boast about the One's aluminum unibody, LG can claim style points for its glass-plated Nexus 4 and the whole of Android's consumer base can whinge on about the need for premium materials in a flagship device, but it's all just background noise to Samsung. True to tradition, the GS 4 is an all-around plastic affair and, really, did you expect anything else? Although, the company has now injected that glossy body with a subtle cross-hatching that lies just beneath the surface on the front and back. The effect is reminiscent of the patterns used on the Optimus G and G Pro, but it's a decidedly inferior imitation that does little to elevate the GS 4's build quality. To the contrary, it actually seems to have a cheapening effect. You can somewhat avoid this with the Frost White version, as the pattern appears most distracting on the black model.

As artillery in the 2013 smartphone spec wars, 1080p displays are a boon for manufacturers, especially as they

> "It's an intentionally plainer take on its predecessor, one that sees those formerly rounded edges ironed out..."

jockey for the top spot in the Android space. In practice, however, you'd be hard-pressed to find a consumer who could *truly* appreciate the bump in resolution. That's not to say we're disappointed with the GS 4's Full HD Super AMOLED panel — indeed, we're glad to see it — but the increase is pixel density (441 ppi) is barely noticeable. The same goes for color reproduction, which bears all the hallmarks of AMOLED: it's bright and super-saturated. Impressively, we were able to read the screen from most every angle — yes, even at a full 90-degree turn.

The ports have been arranged in much the same way as they were on the GS III. There are minute changes: the volume rocker is now a bit more refined and elongated, the speaker grille around back mimics the Note II's placement, the top edge now houses an IR blaster and the home button's taken on a more oblong shape. But that's about as different as it gets. The GS 4's backplate is still removable, still thin and still flimsy. It still conceals all the usual bits, too, like the 2,600mAh battery (which we worry won't last long given the additional pixels), a micro-SIM slot and a microSD reader. It appears the Galaxy S 4 will also support wireless charging (based on the Qi standard). The global pre-production model we saw didn't showcase this feature. At Radio City Music Hall, however, we saw wireless charging pads and compatible backplates — the latter of which we're told should ship with the GS 4 depending on region and carrier.

## PERFORMANCE AT A GLANCE

We can talk about the GS 4's performance, but we unfortunately can't quite put it into the proper context. Why? Well, for starters, the device will ship with two different region-specific CPU setups: an Exynos 5 Octa clocked at 1.6GHz and a 1.9GHz quad-core Snapdragon (likely the 600, based on speed and availability). Further, the company was unable to specify *which* arrangement lies inside the pre-production model we demoed. But based on our brief interaction with the device, we're willing to bet it wasn't of the Exynos 5 Octa variety.

We attempted to run SunSpider on the device to get a sense of browser performance, but the test just seemed to loop. Quadrant ran just fine, though, giving us a score of 8,892 — a result that falls far below that of the One and Optimus G Pro (both packing Snapdragon 600), but falls in line with the Droid DNA and One X+. Navigation and UI actions were fluid and responsive,


The 2,600mAh battery could be cause for concern.

just not as blistering as you'd expect on an eight-core device. Whatever the eventual market reality, you can count on the GS 4 to pack radios for HSPA+ (850/900/1900/2100MHz) and LTE (six different bands in total), all according to regional demands.

## SOFTWARE OVERVIEW

So, what's the real game changer, then? For Samsung, it's all about the TouchWiz software suite layered atop Android 4.2.2 Jelly Bean. And there's no shortage of it either. This time around, the company's taken the base it built with the GS III and Note products (i.e., Air View, Smart Stay), enhanced that functionality and introduced a plethora of new features, too. It's a dizzying array of options to be sure, although entirely emblematic of Samsung's approach to Android. It does make us wonder, though, whether the average consumer will even be aware of all these added bells and whistles. To its credit, Samsung's seen fit to toss in an additional drop-down pane with access to toggles for all of these add-ons, so you'll have that as a crutch.

Now about those features. If it existed on the GS III (or Note II), then it has made the transition to the GS 4. So, Smart Stay, AllShare Cast and Play, S


Software features are packed in from top to bottom.

Voice are all there by default. But there are new additions, like S Translator, which includes support for 10 languages and is baked into apps like email, SMS and ChatOn; S Health, a lifestyle-tracking app (compatible with the Up-like S Band, Body Scale and Heart Rate Monitor) that uses the handset as pedometer and calorie counter; Group Play which connects a network of GS 4's to share music in a surround sound-like mode or networks gaming (enabled on two games: *Asphalt 7* and *Gun Bros 2*); and an Adaptive setting to adjust the screen and volume based on user activity. There's also Air Gesture, which lets you scroll and navigate the phone without touching the device, and Air View lets you ultimately use your finger as an S Pen, giving you a preview of emails, calendar appointments, videos and image galleries when it hovers over the screen.

As for that oft-rumored eye-tracking feature Smart Scroll, that hasn't made the cut. Well, not in the way you've read about. Instead, Samsung's opted to implement the feature using Smart Stay's facial recognition tech, allowing the device to scroll through text *based on tilt*. Smart Pause, another much-hyped feature under the Smart Stay umbrella, suspends video playback when you cast your glance away from the handset. Likewise, it resumes when your eyes re-train on the screen.

## CAMERAS

For rear cameras, 13-megapixel sensors are standard on flagships nowadays (the HTC One being the exception). So to help the GS 4's imaging stand out from the pack, Samsung's borrowed a few elements from the Galaxy Camera. Namely, its wheel mode interface. And much like the Optimus G Pro we recently reviewed, the GS 4 can do dual still and video capture, offers templates (i.e., stamp, heart shape, window, fish-eye) for the picture-in-picture stills, Eraser mode to remove photo-bombers

"If it existed on the GS III, then it has made the transition to the GS 4."


Focus is on features rather than design once more.

or background blur, Cinema Photo for still shots with moving backgrounds, a Sound & Shot option which records up to nine seconds of audio to accompany a still and Drama Shot, a feature that utilizes burst mode to create animated GIFs. There's also a faster lens on the menu, with an f/2.2 aperture.

## WRAP-UP

Overwhelmed yet? You should be. The Galaxy S 4 is a testament to Samsung's ethos: an unabashed focus on features over design, and an immense desire to fork Android as best it can. Still, as much as its add-ons differentiate this handset from last year's, we can't shake the feeling that the GS 4 falls flat next to the competition. In fact, we get the sense Samsung could've called this device the GS III Plus — that certainly wouldn't be out of step with its naming conventions in the past. Don't mistake this preview for a final judgment — there's still a full review to be written, and these are just our first impressions. As the next torchbearer to the Galaxy S throne, however, it levels the goodwill earned by the GS III. D

*Zach Honig contributed to this report.*

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*Joseph Volpe is ambiguously ethnic. He is also an Associate Editor at Engadget.*

REVIEW

# TURTLE BEACH EAR FORCE XP SEVEN SERIES


**Can Turtle Beach's XP Seven Series win over your ears with MLG branding and a hyper-customizable audio experience?**
**By Joe Pollicino**

**Get out of your seat** — okay, you don't really have to do that. Turtle Beach, however, is certainly hoping its new headset won't have you stuck there. After months of teasing, it's finally here. This is the Seven Series, the company's first set officially bred for Major League Gaming tournaments. It's a contractual title that's already been bestowed upon Astro's well-performing Mixamp and A40 systems. But for Turtle Beach, this is a first: we've never seen the company go after a demographic quite this wide, one that demands not just cross-platform gaming

support, but a design versatile enough for everyday listening.

The Seven Series lineup includes the computer-focused Z, the mobile-geared M and the cross-platform XP. For this review, we'll be focusing on the XP bundle ($280), which includes a headset, a virtual 5.1 surround sound-enabling Audio Control Unit and a console adapter dubbed the Console Interface. (For the time being, those last two pieces won't be sold as standalone products.) While the headset itself might seem like the star of the show, in our eyes the ACU and CI offer the most exciting prospects. Together, they allow for virtual surround sound and voice chat with any set of wired headphones on any platform (much like the Mix-amp) while also putting Turtle Beach's tried-and-tested custom audio presets at your fingertips.

"The headset is draped in white and black down to the detachable braided cables — a color scheme we're not in love with. In fact, we felt slightly embarrassed to wear it outside."

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The Audio Control Unit and Console Interface are included.

## HARDWARE

Upon unboxing the unit, you'll find the headset, Audio Control Unit and Console Interface, obviously, as well as various cables for hookup. All told, you get a male-to-male 3.5mm aux cord; 3.5mm cables, one with an inline remote / mic and one without; a Toslink cable; a 2.5mm cable for Xbox controllers; and an extension cable for the ACU.

The headset is draped in white and black down to the detachable braided cables — a color scheme we're not exactly in love with. In fact, we felt slightly embarrassed to wear it outside — it's just a little cheesy, is all. Though it's predominantly made of matte and glossy-finished plastic, it still feels solid and not at all hollow. While it ultimately feels more premium than, say, a pair of Trittons, it still has some catching up to do compared to what Astro's offering in the same price range. Make no mistake, though: this is the best build quality we've seen from the company since the metal-clad HPX.

The leather headband and memory-foam-loaded earpads provide ample comfort for long sessions, and the earcups are cushy enough to keep the cartilage on your ears protected. The cups also fold flat for resting on your collarbones or for easy stowing inside your day bag. The overall clamping force is a bit tight out of the box, but after wearing it a few times, we noticed the headphones had already loosened up a good deal. Thanks to the closed-back design, isolation from outside noise was very good even on the subway. Currently, there's no option for cloth-wrapped padding — Turtle Beach says most of the pro players it polled during the product-development phase didn't mind losing some breathability in favor of better isolation. Still, we'd love to see the option for those who just hate getting sweaty ears.

"This is the first time you'll have this much granular real-time control over your headset's audio."

Like some models from Astro and Tritton, the Seven headset has earcups with interchangeable faceplates. While they're not available just yet, you'll be able to order some with your own custom designs. Oddly, the included set features mesh that implies the headphones are open-backed, but really, that's just an unnecessary design flourish. The faceplates snap firmly into place, but you'll probably need the help of a coin to pry them off — we still prefer the magnetic connection that Astro uses, rather than the snap-on designs from TB and Tritton.

Moving to the underside of the left earcup, you'll find a 3.5mm boom microphone insert and a short cable with a quick disconnect dongle attached at the end. We have little concern that the cable could be ripped from the earcup thanks to its cloth wrap and rubber connection, but its proprietary nine-pin connector ensures you'll be stuck to Turtle Beach for replacement cables. The company says it's for grounding purposes, though that's hard to accept when most headphones at this price point use the standard 3.5mm connection.

Beyond that, the whole quick-disconnect section feels abnormally large with a cable connected. It's especially problematic when you hook up the cable with an included inline remote and mic, as it's simply huge compared to inline remotes on most headphones. On the plus side, the connection is tight and secure, but the button placement of the remote made it tough to find without looking down. Don't get us wrong, it's totally usable, but the user experience doesn't always feel fluid.

So, we're not exactly in love with the headset's design, but the Audio Control Unit is another story. This is seriously a game changer for console users compared to what's been available for cross-platform Dolby surround sound decoders in the past. This bus-powered, wired remote feels solid in hand, with function taking precedence over form. Its circular top handles the majority of volume and surround sound settings, while the rest of the remote's top-facing section is split into eight preset selectors for the incoming game audio in either speaker or headphone mode. Notably, all of the presets and surround sound selectors are capacitive. We were skeptical at first, but thanks to a built-in two-second delay between touch selections, we always got what we wanted — and no, the delay isn't too noticeable. Better yet, all of our taps registered even with sweaty hands.

The topmost section features a physical volume dial that also serves as a mute switch when pushed, sur-

# TURTLE BEACH EAR FORCE XP SEVEN SERIES




The 3.5mm boom mic is detachable for a listening only setup.

rounded by a circular cluster of LEDs (for clockwise-flowing level indication) and then a secondary outer ring of capacitive buttons and LED indicators. The one o'clock position denotes if your mic is muted, while at three o'clock is a Dolby Digital status (stereo or surround sound). The four o'clock spot is a Master button (for saving settings and quickly returning the center dial to its main volume control), and six o'clock features a half-dozen blocks that correspond to your virtual surround speakers. At eight o'clock is a 5.1 button for toggling between the front, rear, center and subwoofer volumes, and nine o'clock is the stereo / surround toggle. Finally, the 10 o'clock position is a toggle for adjusting the angle of the left and right, front or rear speakers. Some of these features have been available to lesser degrees on earlier TB headsets, but merely as presets. This is the first time you'll have this much granular real-time control over your headset's audio.

Running along the left side, you'll find a power toggle, a programmable jog dial (preset as a microphone monitor volume) and another for setting the volume of external sources like MP3 players. On the bottom edge are three audio inputs: a 3.5mm jack for external sources, one for your actual headset and a 2.5mm jack to connect to Xbox 360 controllers for voice chat on Live. On the right edge, you'll notice a vol-

"It took us a couple hours to understand how to adjust the audio in the exact ways we wanted."

ume jog dial for incoming chat audio and a backlit button for switching between speaker and headset mode. Lastly, there's a 3.5mm speaker output at the front of the unit.

On the bottom are three rubber feet that keep the ACU firmly in place on a table and a belt clip (a humorous addition given its large size). As you can imagine, there's a lot of control here — an overwhelming amount, in fact. It took us a couple hours to understand how to adjust the audio in the exact ways we wanted, and that's partly because the included documentation is quite dense. Thankfully, after many trials with some errors, we loved the control that the unit placed at our fingers, as TB promised. Basically, if you're not willing to take a few hours to really command this thing and understand the audio production in each of your games, you might be better off with the simpler options out there.

As an aside, these units are specifically made to work with the TM1 tournament mixer. Basically, it's a $200 mixing console for LAN setups and MLG tournaments, meaning you could easily set up a multi-headset sound solution of your own. It even features a broadcast channel for commentating, and a dedicated chat system so you won't experience any delay conferring with your teammates. We couldn't get our hands on one for this review, but we hope to give you a closer look in the future.

## SETUP

The ACU features a lengthy cable that terminates in a USB jack and a nine-pin connector. When used with a PC or Mac, the USB connection is all that you'll have to worry about to get started (aside from ensuring your surround settings are correct). For your PS3 or Xbox 360, a small Console Interface is needed. Both the USB and nine-pin connection plug in on the front, while the back has a Toslink input (with a pass-through in case you have other Toslink gear plugged in) and another 3.5mm aux input. A light on its top lets you know that you're active. From there it's a matter of plugging in whatever headset you're going to use into the ACU — any other setup happens with the software and presets.

## SOFTWARE, PRESETS AND SOUND

Similar to the PX5, this supports Turtle Beach's Advanced Sound Editor (ASE) and Preset Manager (PM) software. Using your computer, you'll be able to make your own EQ presets, and assign them, or ones you've downloaded from Turtle Beach, to the ACU. Mac users are currently left out of the ASE, but the company is actively working

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on getting the software out eventually. The sooner the better, too, as there are currently fewer than 20 presets available for download, and they're only geared toward *Dead Space 3* and *Black Ops 2*. Interestingly, the whole website experience is akin to your average forum, which is to say download links are spread across multiple threads. Really, an app store would make more sense. Thankfully, for our purposes, the folks at Turtle Beach sent us some of their own EQ presets to test out.

Sonically, the whole package performs extremely well, even if it's a bit low on volume out of the box. The headphones have a thick, smooth tonality with a decent enough soundstage that works well with any EQ and surround setting we chose from the ACU. While Turtle Beach says the headset is voiced for a relatively flat response, we noticed a definite bump in the mid-range when using headphones without any EQ. The ACU doesn't push too much hiss in the signal, and operates

"The whole package performs extremely well, even if it's a bit low on volume out of the box."

pleasingly as a soundcard. While the XP Seven and ACU are made for each other, you can certainly connect your own headphones to the unit — something we know audiophile gamers are going to appreciate. With the ACU, it really comes down to this: you can make a preset focused solely on an EQ that sounds ripe to your ears, or simply forgo a nice mix and highlight certain frequencies for an unfair advantage. Here's the interesting part: although you can load the ACU with all these presets, MLG gamers will be plugging into ones with league-mandated presets and a higher overall volume output.

The real problem with Turtle Beach's preset-packing headsets is that if your chosen game has poor audio onboard, you're going to notice quickly. For example, *Dead Space 2* has an extremely immersive sound design, which you really begin to appreciate as you're changing the volumes of the surround sound channels and moving the bilateral angles of the front and rear side channels around your ears. Speaking of those angles, you can move the front-left and front-right virtual speakers in 10-degree, parallel increments from the front side and back to side with the rears. Lowering the volume of the center channel allowed us to kill much of our character's own sounds like footsteps and gunshots, ensuring we weren't scaring ourselves silly. However, moving to *Modern Warfare 3*, it soon became clear that the only things the audio designers left in the center channel were voice prompts. In those cases, the ACU was too powerful for its own good — you really begin to want what you can't have. Sure, one could achieve all of this with a real speaker setup, but it would never be this fast to adjust.

You may be wondering about the ACU being only 5.1 instead of 7.1 like most headsets. Put simply, most solutions offering 7.1 really use Dolby PLIIx to matrix two more virtualized rear channels, based on the actual 5.1 info being sent to the decoder box. In effect, it's more of a filler than anything, and essentially unnoticeable to us even after testing headsets for years with the feature. The granular audio controls more than make up for it.

When it comes to mic and chat audio, there is also a good chunk of features. Since the Seven headset blocks out a fair amount of outside noise, the ACU offers voice monitoring so you won't feel the need to shout into the mic. Thankfully, it's also adjustable, which allowed us to dial in the perfect amount of volume for games, chat and our voice. The feature worked more effectively while using the boom mic, with the inline remote com-

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ing off as harsh through the ACU. Like TB's other headsets, you'll also find chat boost included, which adjusts the chat volume at the same rate as the game audio changes, while still keeping your set ratio. For example, if the game volume moves up one notch, the chat channel will only move up one notch even if the actual volume is many times lower. Unlike our experience with the PX21 a few years ago, the chat boost was thankfully less aggressive in its attack quickness — nothing is worse than an ear-piercing spike in volume. In short, the quality from the boom and inline mics is more than acceptable for their intended uses. Don't take our word for it, though, as you can hear for yourself in the audio sample provided earlier in this review.

## WRAP-UP

A few design quirks and frustrations aside, we're pleased with the XP Seven Series bundle. Even more than the headphones, though, we're smitten with the Audio Control Unit. The Seven Series headset is a solid enough offering, but there are plenty of other $150 headsets we'd use with the ACU if we could. Compared to Astro's older MLG headsets, this product represents a clear step forward, and we're sure many competitive gamers will enjoy it. If it were up to us, we'd hold off until the ACU becomes available as a standalone product and then pair it with an even better pair of headphones. One thing is certain: the Astro Mixamp has finally been beaten at its own game. It's time to take Turtle Beach seriously outside the living room. D

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*Joe's functionally useless without his glasses — a fact you really shouldn't disclose to any enemies.*

BOTTOMLINE

## TURTLE BEACH EAR FORCE XP SEVEN SERIES

**$280**

### PROS

- Insane levels of real-time audio control
- Impressive audio quality
- Relatively portable

### CONS

- Frustrating learning curve
- Advance Sound Editor not yet available on OS X
- The headset itself isn't our favorite

### BOTTOMLINE

Turtle Beach's XP Seven headset system lives up to its MLG endorsement, but its Audio Control Unit outshines the headphones themselves.

# HEADS-UP


## INSIDE VALVE'S PLAY FOR THE FUTURE OF GAMING

*by* **BEN GILBERT**
*photographs by* **MICHAEL CLINARD**

**IT'S A BEAUTIFUL LATE WINTER DAY IN BELLEVUE,** just east of Seattle, Wash. Instead of enjoying the outdoors, I'm sitting in a rectangular white room with three programmers, surrounded by three walls covered in augmented reality markers. Not that I'm complaining: Valve Software's Joe Ludwig, the programmer in the room who most resembles a member of Anthrax, is walking me through his company's latest work in the world of virtual reality. It's the first anyone outside of Valve will see of the company's VR efforts thus far.

As it turns out, the software company is working with Oculus VR to port the tremendously popular free-to-play first-person shooter, *Team Fortress 2* to the upcoming Rift development kit. The free update, dubbed "VR Mode," is the latest benchmark in Valve's ongoing hardware initiative. "We think that both augmented and virtual reality are going to be a huge deal over the next several years," Ludwig tells us.

Resultantly, Valve's jumping in head first as evidenced by its partnership with Oculus VR — perhaps the most interesting of Oculus' collaborations. The nascent VR company is working with *Hawken* developer Adhesive Games, as well as *Doom* studio id Software, neither of which has the capital nor the manpower of Valve. More importantly, Valve has a team dedicated to working on *just* VR — a level of investment in VR tech that is unmatched outside of Oculus itself. The partnership thus far is fairly cursory.

"We're friends. They help us out with hardware and we help them out with software," Ludwig says.

No money changed hands; Oculus provided development kits, and Valve's providing *Team Fortress 2*'s VR Mode. The casual nature of that relationship is reflected in Valve's attitude about releasing the new mode — *Team Fortress 2*'s


The Oculus Rift hub, which acts as an interface between the head-mounted display and game system, along with the front-facing plate of the display goggles.

VR-enabling update in the coming weeks is essentially a giant beta test in which Valve will measure and analyze the way *TF2* players interact with virtual reality hardware.

"*Team Fortress* was sort of the obvious choice for this," Ludwig tells us. "The *Team Fortress* community is large and healthy. There are millions of people playing *TF* every week, but they're also used to us shipping a lot of updates."

Indeed, updates for *TF2* ship nearly weekly, if not multiple times per week. Beyond that, though, the community is used to being a test bed for Valve's projects; *TF2* was where Valve first introduced free-to-play, as well as microtransactions with its hat system (among many other initiatives).

"The real reason for [choosing] *TF* is the community around *TF*, and the way that we use it as a place where we run experiments," Ludwig confirms.

Like most Valve games, *TF2* is played from the first-person perspective, which made it a better fit than, say, the isometric view of *DOTA 2*. To reiterate, *most* Valve games are first-person perspective games, from *Half-Life* to *Portal*, which made us wonder why none of those games are getting the port treatment.

"There's certainly interest internally in moving other Valve titles. We don't know yet what the community thinks of all this," Ludwig says. "We've played a bit in *Left 4 Dead*; we've played a bit in *Half-Life 2*. We haven't taken any of those other games to the point where they're anywhere close to being ready to be shipped; we've just sort of experimented with head tracking a little bit."

The same goes for internal hardware. There is internal interest in creating hardware, but there's little to say beyond that.

"We've run a ton of different experiments; we've looked at lots of different things. And we don't know what we would ship in this space, and until we do, there's nothing to say there basically," Ludwig says.

Though Valve's hired a team just for hardware purposes (20 to 30 people, including new hires and Valve vets), the company doesn't have anything to show for its efforts just yet (at least on the VR front).

"We don't have any hardware," Ludwig says when asked about working with Oculus and why Valve didn't create its own VR headset. "We've done a bunch of experiments with various bits of hardware, but we don't have a display that we can ship. Oculus is actually out there doing this, and so we're partnering with them because they have

## "We don't know how strongly people will react to VR. We don't know how popular it will be..."

the hardware and we have the software and we can help each other out. And we can both learn a lot in the process."

On the whole, VR remains "a big question mark" for Valve. Thus far, only a handful of folks internal to Valve have gone hands-on with *TF2*'s VR Mode, and it's clear the hardware team is eager to get more feedback. Ludwig prods me with questions following my hands-on, clearly hungry for outside feedback — he wants to know if I felt sick or disoriented, and my general impressions.

"We don't know how strongly people will react to VR," Ludwig says. "We don't know how popular it will be, what people wanna see. It might be that we need to learn a lot more from *TF* before we move on to other titles. We just don't know what's gonna happen."

# THE EXPERIENCE

The only thing left to know is perhaps the most important: how does *TF2* play on the Oculus Rift? We find out just that as Ludwig leads us through a hands-on demo of the game's VR Mode update, replete with a near-final build of the Oculus Rift dev kit (not quite the one shipping to backers, but far more advanced than the previous Oculus prototypes we've used).

We initially pilot a Heavy class, supported by and playing against bots on Payload map "Gold Rush"; Ludwig intentionally eases us in with the game's slowest-moving character. That's primarily due to the need to acclimate players to the speedy movement of *TF2* in a VR setting over longer periods of time. "We found that most people have some level of discomfort after playing for 20 or so minutes the first time," Ludwig tells us. Our experience isn't quite that long, but we don't experience any motion sickness during the hands-on. The characteristic reaction to using Oculus with any game world is still a stark one — the initial feeling of being instantly teleported is jarring, and

Artwork from the world of *Team Fortress 2*, including the Soldier, the Pyro and Demoman.

IMAGES COURTESY OF VALVE

the most immediately impressive part of the Oculus Rift. However, that's a measure of the hardware, not *Team Fortress 2*. Playing *TF2* is actually quite different from the various tech demos that we've seen from Oculus. Rather than exploring the environment and paying attention to little details, we are immediately thrust into multiplayer. The experience goes from one of exploration in the tech demo to one of gimmickry in *TF2* — the game's VR Mode is little more than a new window for viewing the game, and has almost no impact (at least in our demo) on gameplay.

You can turn your head to turn in-game, and you can freely aim all over the generous field of view without altering said field of view — the latter feels akin to playing an FPS on Nintendo's original Wii, albeit far more accurate. We're told that VR Mode will ship with a few other options for interaction with the game through Rift, offering variations on the way we played. The standard setup has look-dictating movement direction, meaning that innovative uses of Rift, like moving forward while shooting sideways (by looking sideways with your head, as shooting is mapped to the mouse), won't work. Of course, *TF2* wasn't built for use with VR; sure, the game is *playable* in VR, but it isn't *designed* for VR. Resultantly, the experience reflects that reality. There's little opportunity to explore *TF2*'s world given the fast-paced nature of the game, and there's little incentive to do so for the same reason. Exploration and immersion are the two most impressive aspects of


Concept sketches from Valve showing the Soldier along with early versions of his primary assault weapon, the Rocket Launcher.

IMAGES COURTESY OF VALVE

Oculus Rift — arguably its defining features — and *Team Fortress 2*'s VR Mode highlights neither. That said, *TF2*'s VR Mode isn't meant as a tech demo for the Oculus Rift, but as a test bed for Valve's games in VR; it doesn't need to sell the Rift, either, given that only dev kits are available, purchased by developers and those already sold on the technology.

So, what does *TF2*'s VR Mode offer folks who're getting a Rift dev kit in the coming weeks? Beyond acting as a demonstration of how a first-person shooter works in VR, it's a pretty strong warning that ports of existing games don't necessarily take advantage of the Rift's strengths. It also serves as the only full game playable using the Rift at launch, giving eager non-dev backers something to do while they wait for more content.

And it demonstrates that even a fast, frantic shooter like *Team Fortress 2* can work with VR, even if it's a bit underwhelming. It's early days for VR — at least the latest incarnation — and *TF2*'s port is a reflection of that. We're more excited for what fruit this giant beta test bears than we are to play existing titles with a new headset, and it's good to hear that Valve is too. When asked about the market potential of VR, Ludwig addresses the concerns we're voicing here over *TF2*:

"I think that probably the amount of content that's available is actually a much bigger barrier than the price. Even at a few hundred dollars, there are a lot of people who can spare a few hundred dollars; $300 or whatever, if it's a thing that they're really interested in." D

# VIRTUAL REALITY NOW

**The story behind the Oculus Rift, from garage modding to Kickstarter crowdfunding, and the future of the heads-up display**

BY *Sean Buckley*
PHOTOGRAPHS BY *Sam Comen*

**AS GEEKS,** we have a tendency to let our imaginations run away with us. Science fiction–fueled dreams conjure up images of robots and artificial reality. We judge our gadgets by the arbitrary standards of famous speculative works: hoverboards by 2015 and a holodeck in every home. It's a silly and unrealistic way to measure our progress, but it inspires us to build the future we're tired of waiting for. This is the kind of passion we found at Oculus VR headquarters, where founder Palmer Luckey and a platoon of software engineers, hardware gurus and marketing wizards hope to make virtual reality a *plausible* reality. We sat down with the company's aforementioned founder and VP of Product Nate Mitchell to find out where their passion came from and where Oculus VR is heading.

"Before the Rift, I worked on a lot of different things," Luckey says, recalling memories of his parent's garage. "I was a hacker, an electronics modder. I worked a lot on modifying game consoles, building computers and making little electronic doodads."

Like many, Luckey was lured to the world of electronic tinkering by the modding exploits of Ben Heckendorn, who eventually inspired the young builder to create his own console-modification community, ModRetro, with a simple motto: learn, build, mod. It wasn't long before Luckey's love of modding crossed paths with his interest in virtual reality.

"I really just wanted to go out and buy a virtual reality headset," Luckey tells us, reliving the frustration that led to the creation of the Oculus Rift. "I couldn't find anything that I wanted to buy, so I made the foolish decision of saying 'I bet I could make something.' I wasted a few years doing it," he jokes. "But it was a really fun hobby."

Luckey's early prototypes were unpolished amalgamations of other devices, culled from what he believes to be the largest personal collection of

FIRST IMPRESSIONS

# Heads-Up with **The Oculus Rift** Development Kit

By **MARK HEARN**

Presenting us with a bland, brown cardboard box, Palmer Luckey cut through a thin layer of tape and opened the package's lid. This unearthed a plastic, but rugged black briefcase, which gave us a look at what's in store for the project's backers. Luckey unbuckled the case's latches, which revealed a foam protective packaging loaded with the updated headset, a control box, interchangeable lenses, video cables and a set of international power adapters. After this ceremonial process

**UNBOXING** the Kickstarter project backers' version of the Oculus Rift.

head-mounted displays in the world.

"I keep trying to find someone to prove me wrong so we can be best friends." he says, laughing. "A lot of my early prototypes were built off of parts that I cannibalized from these units, and there were a lot of things I got that I wound up upgrading with more modern displays. One head mount might have really great optics, but another would have more modern displays — I was able to put the better displays in the older optics and get a pretty cool thing."

These projects were the foundation of what would eventually become the Oculus Rift, though you wouldn't know it from looking at them.

"I named them in order," Luckey says, describing his early HMD (head-mounted display) prototypes. "It wasn't a very creative naming scheme. PR1 was the first, for Prototype 1."

This first unit wasn't even in 3D. It was a far cry from Luckey's current stereoscopic headgear, but in a way, it inspired the Rift's current design. While planning a follow-up project, Luckey had a breakthrough: the panel he used on the PR1 had an active area that was 120.96mm wide — almost double the average human interpupillary distance (the distance between the center of the left and right pupils). A plan quickly formed: instead of using two displays to build a 3D head mount, Luckey figured he could do it with one. The resulting device, the PR2, wasn't very good according to Luckey, but it served as a proof of concept.

The prototypes added and dropped features as they went. The PR1, for instance, had a

**NATE MITCHELL**

Software engineer, former Scaleform and Gaikai team member and driving force behind the Oculus Rift Kickstarter campaign.

**PALMER LUCKEY**

Founder of Oculus, architect of the Rift VR headset and, as of yet, undisputed owner of the largest HMD collection in the world.

"I named them in order. It wasn't a very creative naming scheme. PR1 was the first, for Prototype 1."

came to an end, the contents of the chest were placed in my care for further observation. I immediately noticed this new version of the Rift carries a little extra weight (about 90 grams) and has gone through some palpable changes. For starters, this updated dev unit sports a larger 7-inch display, which Oculus used in place of its previous 5.6-inch model due to a manufacturing shortage. The company told us that it will return to a smaller screen size when it releases a final consumer product.

The onion-esque layers of gaffer tape that covered its predecessors have been upgraded to a dull, black, sturdy plastic that bears a restyled company logo across its rear panel. It may not be the polished, consumer-geared render that was featured in Oculus' Kickstarter video, but it's definitely a far cry from the handmade contraption that's been hitting the trade show circuit for nearly a year.

Before putting on the head-

motor from an Aura Interactor embedded on the back, but Luckey found the force feedback too painful, and didn't carry the tweak over to future models. The PR3, PR4 and PR5 all had wireless capabilities, but it took a backpack to lug around the necessary tech. This, too, was nixed. Luckey revised his design as he went, sharing his progress with like-minded modders on online forums.

"The PR6 was the first one that I never got around to releasing a public write up of; I just made it," Palmer explains. "That was the one I ended up sending to [id Software's John] Carmack and ended up calling the Rift. He still has what would be called the PR6."

Carmack took that headset to E3 2011, garnering attention from not only the public, but from a trio of industry veterans that would help Luckey build Oculus VR into what it is today: Brendan Iribe, Michael Antonov and Nate Mitchell.

"We were actually introduced by a mutual friend of Brendan and Palmer," Mitchell remembers. "As soon as we saw a demo, it really became clear that we had to invest in this thing ... We helped Palmer reboot the Kickstarter, and pretty shortly afterwards everyone joined the company."

Iribe, Antonov and Mitchell have some experience with fledgling startups. Iribe helped Gaikai catch Sony's attention, and before that, he worked with Mitchell and Antonov at Scaleform, which was eventually bought up by Autodesk.

set's new three-strap harness, I took some time to get acquainted with its sets of exchangeable vision-correcting eyecups that lock into a set of brackets within the Rift's housing. Two of the three pairs of lenses are used to offset obstacles for users who are nearsighted by allowing them to change the headgear's focal distance, instead of using a one-size-fits-all approach. Oculus advised that some people may still need to wear their glasses or contacts in order to get the best experience when using the Rift. If this turns out to be the case, the development kit also features a knob-based adjustable assembly that allows you to re-position the system's optics closer to your eyes for comfort and improved viewing.

After a little fine-tuning, I finally placed the headset's viewfinder over my eyes and tried out the SDK's pre-loaded demo, "Tuscany." The Rift's comfortable fit was reminiscent of a well-made paintball mask, something that you can easily wear for a long period of time. A virtual Italian villa faded into view as my senses went into shock. It was startling, as if I had been plucked out of the California office and dropped into another world. Convincing as the illusion was, it wasn't perfect

**NATE MITCHELL** tells the genesis story of Oculus and its development process, alongside one of the earlier prototypes.

"Brendan and Mike worked at Scaleform for a long time," recounts Mitchell. "They really built it up from the beginning to what it was: a multimillion-dollar company. I think with Oculus, it's sort of the same thing — we really want to change the way people play games."

Given the team's success at building up young companies that were later absorbed into larger corporations, we wonder aloud if Oculus is destined to follow a similar path. Mitchell assures us it isn't, citing the company's vision of creating a complete platform for virtual reality development. Luckey chimes in with agreement.

"I have no visions of selling at this point," he says. "My goal was never to make a company or to sell a company, it was to make virtual reality and — later, after I realized it was going to happen — make it available to everyone."

For now, "everyone" means developers.

"We really believe at Oculus that hardware is really only as good as the content it runs," Mitchell explains. Putting Luckey's stereoscopic ski gog-

— the digital estate's buildings were blurry and out of focus. Mitchell explained that this was a fault of the revision's new 7-inch panel — it uses the same resolution as older prototypes. Mitchell directed me to look from left to right, helping me get my bearings. Someone then placed a gamepad in my hands and told me to take my first steps.

Pressing upward on the gamepad's left analog stick, I was immediately hurled forward in an unnatural fashion, which brought on a sudden feeling of wooziness. My head felt foggy and my stomach started churning, but after a few short minutes, my nausea slowly subsided. Continuing to explore Tuscany's scenery, I tried to maneuver up a flight of stairs by using the control system's right thumbstick. This didn't work too well as I found myself bumping into a wall and getting stuck. I was then told to rotate my head in the direction that I was trying to go in order to pull off turns and navigate myself past obstacles obstructing my path. It took a little while to find my sea legs, but gradually the process started to feel more natural and eventually I was able to walk through a room without bumping into things like a klutz.

Now with my equilibrium

gles in the hands of game developers is key to the Rift's success.

Distribution is the name of the game, and it's why we dropped by Oculus' offices in the first place: the company's first professionally manufactured VR development kit is finally ready for consumption. With adjustable optics, a more supportive headband and a prominent 7-inch display, it easily outshines its hand-built predecessor. More importantly, it will soon be available to anyone with a few hundred dollars and an interest in VR.

"We're fulfilling all the Kickstarter rewards and then moving on to pre-orders," Mitchell explains. "That's going to start very soon, mid-March."

Folks who missed the bandwagon won't have to wait long either, he says, explaining that Oculus is building more development kits than it expects to sell, specifically to have stock ready to ship at a moment's notice. Oculus' engineers will spend the next few months fleshing out the HMD's SDK, aiming to give developers the tools they need to build great VR experiences.

"We've already got Unreal Engine 3 and Unity integration, but beyond that, we want to add Mac support, Linux support and we want to continuously improve our feature set," Mitchell tells us. "Things like sensor fusion, predictive tracking, head and neck modeling ... All this stuff is going to get better over time."

More hardware is on the way too; Luckey tells us the Rift Development Kit and its companion SDK are only the beginning. "It needs to be an entire platform, not just a developer kit with an SDK," he says. "We're experimenting with haptics, different motion-control devices and different input devices, but it's really hard to say where we're going."

The founder goes on to explain that developer feedback will dictate what sort of features we'll see

fully restored I took a casual stroll. Making my way outside, the game's awkward silence started to sink in and the reality that I was actually in a room full of people began to slip away. Never before has a gameplay experience had such an effect on my psyche. But before I could come to grips with these unsettling feelings, the demo session came to an end, my headset was taken off and I was back in the conference room almost as if I had never left it.

The updated dev kit's new appearance doesn't depart from Luckey's original idea of bringing an affordable VR experience to the masses. In fact, it builds on it. Hardware lives and dies on software support and by overhauling equipment, Oculus is showing developers that it means business. It's these individuals that will dictate the platform's future, providing not only feedback to improve the company's development model, but also information that can be used to eventually build a consumer product. Recently at Engadget Expand, Nate Mitchell mentioned plans for an improved screen resolution and improved motion tracking. It's additions like these that will ensure that the Rift is ready for mass consumption.

**PALMER LUCKEY** demonstrates a pair of the various lenses which will ship with the Oculus Rift to help gamers fine-tune their own viewing experience.

in the eventual consumer model.

With any luck, that input will start rolling in soon: Valve is preparing to update its popular free-to-play shooter, *Team Fortress 2* with a Rift-compatible VR mode, openly describing the update as an experiment. Valve's Joe Ludwig says that the *TF2*'s robust community is ideal for testing out the new technology, and both companies are eager to see how the community reacts.

The Rift still has a lot of growing to do before it's ready for store shelves. Luckey says it still needs to be lighter, and more comfortable to wear. Oculus hopes to find a smaller, higher-resolution display for the consumer version, lightening the user's load while increasing visual fidelity. Unfortunately, our hosts wouldn't hazard a guess on availability.

"A big part of it is waiting for great game content to be available," explains Mitchell. "We really want to deliver the best experience, and if it takes a little bit longer to get there, then that's what we'll do. Game developers will be able to tell us when it's ready." D


# Expand in Pictures

**We've seen Expand** by the numbers, but only a picture can transport you bayside; a row of arcade cabinets lining a San Francisco pier; the Golden Gate Bridge in the distance. Such was the scene at our first-ever conference for consumers. The two-day event featured a woman in a bionic suit, an award-winning aquatic drone and industry insiders like Kickstarter's Yancey Strickler and OUYA's Julie Uhrman. Now, with Expand SF behind us and this retrospective to remember it by, it's on to the next big thing!

*— Christopher Trout*



1. The 3D printing panel discussion on the main stage. 2. Ekso Bionics demos its robotic suit, which helps users overcome mobility issues. 4. Chris Anderson, CEO of 3D Robotics, demonstrates their drone and some telemetry features.

PHOTOGRAPHS BY STEVE JENNINGS (1,4), WILL LIPMAN (2), DARREN MURPH (3)

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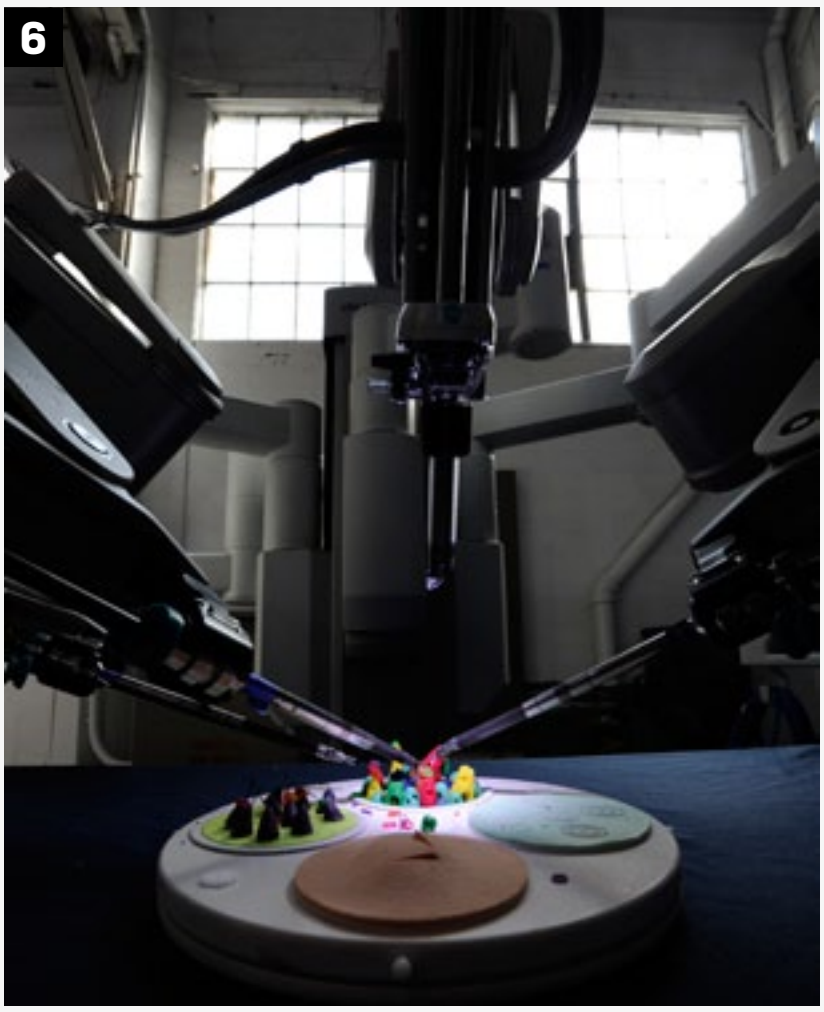


5. Classic arcade action at Saturday night's after-party. 6. The da Vinci Surgery's micro-training field. 7. *Robopocalypse* author Daniel Wilson (left) and Science Fiction and Fantasy Writers of America President John Scalzi.

PHOTOGRAPHS BY SEAN BUCKLEY (5), WILL LIPMAN (6), STEVE JENNINGS (7)

8

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10

8. Engadget's own Sharif Sakr finds his balance on ZBoard's newest electric-powered street cruiser. 9. Behind the scenes, keeping the livestreams and in-house displays rolling. 10. Expand attendees settle in for two days of tech-related talks. 11. Action in and around the event space in Fort Mason.

PHOTOGRAPHS BY JON TURI (8,9), MAX MORSE (10), DARREN MURPH (11.1/5), WILL LIPMAN (11.2/3), STEVE JENNINGS (11.4)

11

Swipe for more images

# Let's Go Places

#LetsGoPlaces Places you never imagined.

TOYOTA | Let's Go Places

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## GLITCH CRAFT

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## GLITCH CRAFT

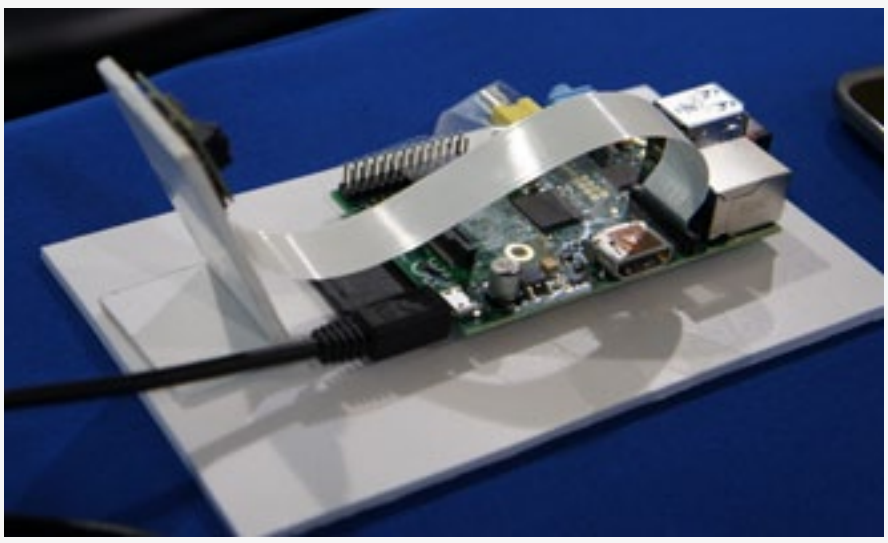
Do not attempt to adjust the picture. Architect and designer Ferruccio Laviani is controlling this transmission. It's not a vintage set piece from *The Twilight Zone*; what you are seeing is a rendered preview of Laviani's Good Vibrations cabinet, to be made in collaboration with the Fratelli Boffi company for the upcoming Salon Internazionale del Mobile in Italy this April. The event is a benchmark for Italian furniture design and as Laviani's previous works have shown, he has a talent for merging classical styles and textures with the digitally influenced present, creating jarring, yet memorably enchanting pieces.

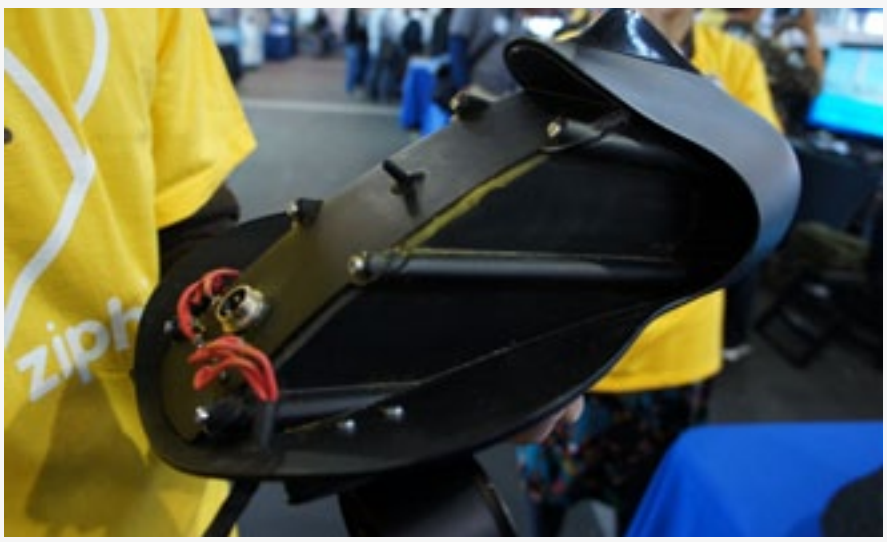
PHOTOGRAPH COURTESY OF FRATELLI BOFFI

**THE AZOREAN CEO** and Ziphius team member talks solo subs and the flavors of Linux

# EDMUNDO NOBRE


**What gadget do you depend on most?**
It has to be the smartphone; the only gadget that is with me 24 hours a day.





**Which do you look back upon most fondly?**
My first 48K Spectrum computer; the time waiting for the data to be loaded from the old magnetic tape with that unforgettable noise.

**Which company does the most to push the industry?**
I'd have to say the video gaming industry because the players are extremely demanding. They are constantly pushing the hardware to the limit.

**What is your operating system of choice?**
Still Windows (mainly for work), but slowly changing to Linux-flavored alternatives.

**What are your favorite gadget names?**
Right now, it could only be Ziphius.

**What are your least favorite?**
As long as the name makes sense to whomever created it, I have no problem with it.

**Which app do you depend on most?**
Those for reading news. It is the best way to be constantly in touch with the world.

**What traits do you most deplore in a smartphone?**
The price of the good ones.

Images from the Ziphius booth at the Expand event in SF.

**Which do you most admire?**
All the reasons that make them so expensive.

**What is your idea of the perfect device?**
A device that becomes an extension of myself in the sense that I just forget I'm using it.

**What is your earliest gadget memory?**
My first portable AM/FM radio.

**What technological advancement do you most admire?**
The emerging technologies related with the future clean energy generators.

**Which do you most despise?**
All technologies have the potential to have a positive impact if correctly used.

**What fault are you most tolerant of in a gadget?**
There's always a better one coming soon.

**Which are you most intolerant of?**
Those that make too much noise, whatever they are…

**When has your smartphone been of the most help?**
Each time I really need to call my wife.

**What device do you covet most?**
A low-cost personal submarine to go below 3,000 meters depth.

**If you could change one thing about your phone what would it be?**
Much longer battery autonomy.

**What does being connected mean to you?**
The ability to make spatial distance less relevant.

**When are you least likely to reply to an email?**
When I'm sleeping.

**When did you last disconnect?**
Twelve hours ago, when I took a plane to Lisbon, after leaving the Expand Engadget event in San Francisco. D

***IN REAL LIFE*** is an ongoing feature where we talk about the gadgets, apps and toys we're using in real life.

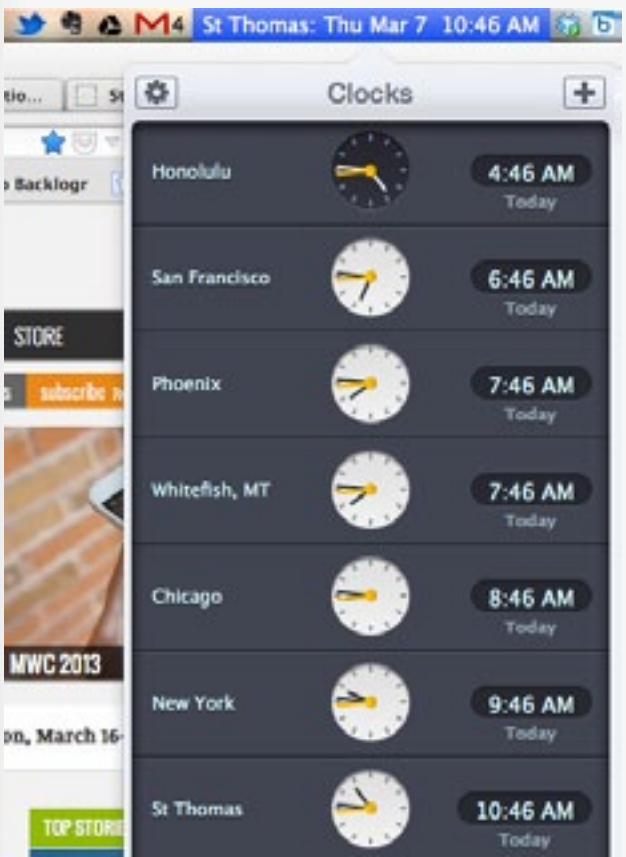
# CLOCKS FOR MAC

Pong Research Classic Soft Touch Case for the iPhone 5

BlackBerry Z10

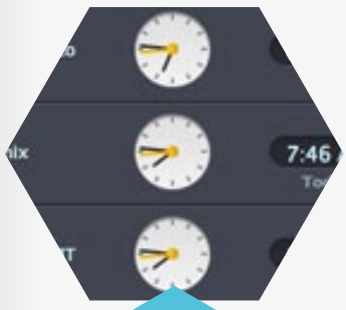
**First things first:** I consider myself a power user. I realize that term is highly overused, so let me put it this way: I frequently find myself wishing for additional functionality that manufacturers don't enable by default. Take OS X's menu bar clock, for instance. Yeah, you can show AM / PM, and you can even show the day of the week, but beyond that, it's not going to blow any socks off. You may wonder why I'm obsessed with the amenities found in a clock — if so, that's fine. The reality is that I find myself crossing time zones a lot. It's rare that I'm in the same one for longer than a fortnight.

And, the other reality is that my work never leaves ET. The time in New York is the time that my brain is on, always. Engadget runs on ET, and everything I do somehow involves it. I haven't changed the clock on my Mac since I took ownership of it, regardless of whether I'm in Samoa, Tokyo, Portland or anywhere else. As serendipity would have it, I ran into *The Verge*'s own Dieter Bohn recently in California. I knew he was a power user as well, and I asked his opinion on alternative clock apps. "Clocks!" he exclaimed. "Check this out."




He was right. It's worth checking out. Clocks for Mac is a $1.99 app from StudioDalton, and it adds yet another clock to your menu bar. From there, you can add a limitless amount of time zones (even customizing the city name to one you're familiar with). It'll show the day, time and even the city in the menu bar *without overriding your built-in clock*. That's huge for me. Now, I constantly have my Mac clock in ET, while Clocks shows the time of the city I'm in. Better still, the app's drop-down menu allows you to toggle ahead or back up to 12 hours to easily see what time it'll be in London when it's 5 AM in Pago Pago. Man, I miss Pago Pago.

*— Darren Murph*




Clocks for Mac

# PONG RESEARCH CLASSIC SOFT TOUCH CASE FOR THE iPHONE 5

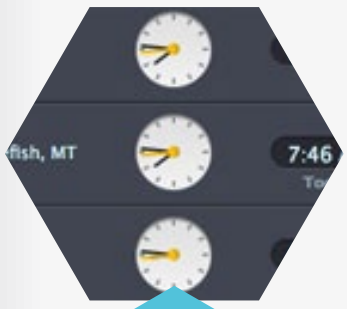
BlackBerry Z10

**Pong Research believes** that its magical / scientific iPhone 5 case can improve your signal reception, conserve your battery life and reduce your exposure to radiation. As I lack access to any SAR meters, anechoic chambers or other rigorous equipment to examine those claims in detail, I thought let's just see how it plays out as an iPhone case. With a fit that gently embraces the phone's sides and rear cover, it comes with a screen protector to coat the display, and boasts a mild lip to prevent you from harming the glass when you place the device upside down.


The downside to it being so thin and unobtrusive is that there's no protection on the top or bottom of the phone. So I have had to guard it a little cautiously. I'm not sure I've measured any real improvement in my cellular reception — although I'm sure there have been a few moments where I've wandered into a signal blackspot without needing to end a call — but I won't make any claims that would land me into hot water with the science police. If I have one complaint, it's that the bright red shell has picked up some of the dye from my jeans and now has some rather darkened edges. Still, given that it's saved me from a few panic-inducing drops over the last few weeks, I'll give it a free pass.

*— Dan Cooper*

# BLACKBERRY Z10




Clocks for Mac

Pong Research Classic Soft Touch Case for the iPhone 5

**Brad Molen's** Back to BlackBerry series was a great overview of what it's like to live with the BlackBerry Z10. However, you could say his device is a fish out of water: it's been hopping across networks that don't officially carry the Z10 yet. I felt obliged to try out the reborn BlackBerry on its native Canadian soil, out of (a somewhat irrational) patriotism, and also a desire to see how it runs with full-time LTE and the typical carrier software load.

For starters, having "real" 4G consistently on tap is a tremendous help. Photo sharing is wonderfully quick, and it's only the browser code that slows web access. Network performance is up to snuff on the Rogers variant I tried. I got the same 15 to 20 Mbps of typical download bandwidth I see on other platforms, and the call quality is the same as it is in the States — that is, good enough, but not great. Software on the Rogers version is light and the home screen's emphasis on currently running apps tends to minimize any annoyances with carrier bloat.


A large part of what Brad said about the overall Z10 experience is true, so I won't rehash what he said on that front. Personally, my frustration stems from an interface that bogs down those very tasks that need to be done quickly. When BlackBerry is all about email and processing things quickly, why are there three steps to delete one message and seven to check for app updates? If you're the stereotypical BlackBerry customer, those extra taps could amount to a lot of wasted time.

However, BlackBerry has made an important leap that I can't stress enough: the Z10 feels like a thoroughly modern phone. Day-to-day use is often enjoyable. It's a multitasking champ that juggles live processes without conspicuous performance issues, and the touchscreen keyboard is one of the best you'll find for accuracy, comfort and speed. Would I chuck my Galaxy Nexus or iPhone into the nearest lake in favor of a Z10? No — they still have more of the apps I want, and the BlackBerry isn't ideal for an Engadget editor's messaging and calendar demands. But I know many casual smartphone owners (and a few not-so-casual users) who would be happy with a Z10, and that's real progress for the BlackBerry platform as a whole.

*— Jon Fingas*

The week that was in 140 characters or less

# The Bot Life, Internal Records and Trillions of URLs

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"Multi-material printing is the next holy grail of 3D printing."

— **Hod Lipson / Professor of Engineering, Cornell University**

"There are certain pop culture icons that've been around forever — robots are a good example."

— **Daniel H. Wilson / Bestselling author of *Robopocalypse* and *Amped*, Iron Cloud Entertainment**

"I'm a platformer. I can't play first-person shooters. I grew up playing *Super Mario Bros.*"

— **Julie Uhrman / CEO, OUYA**

"There are 30 trillion URLs out there; in 2008 there were only 1 trillion."

— **Tamar Yehoshua / Director of Product Management, Google**

"Soon the robots will have all the crappy jobs."

— **John Scalzi / President, Science Fiction and Fantasy Writers of America**

"We're one tech breakthrough away from a new era. Maybe it's a flexible display. Maybe it's making the battery smaller. We're pretty close."

— **Scott Croyle / Vice President of Design, HTC**

"My medical records should be in my body, that's where they belong."

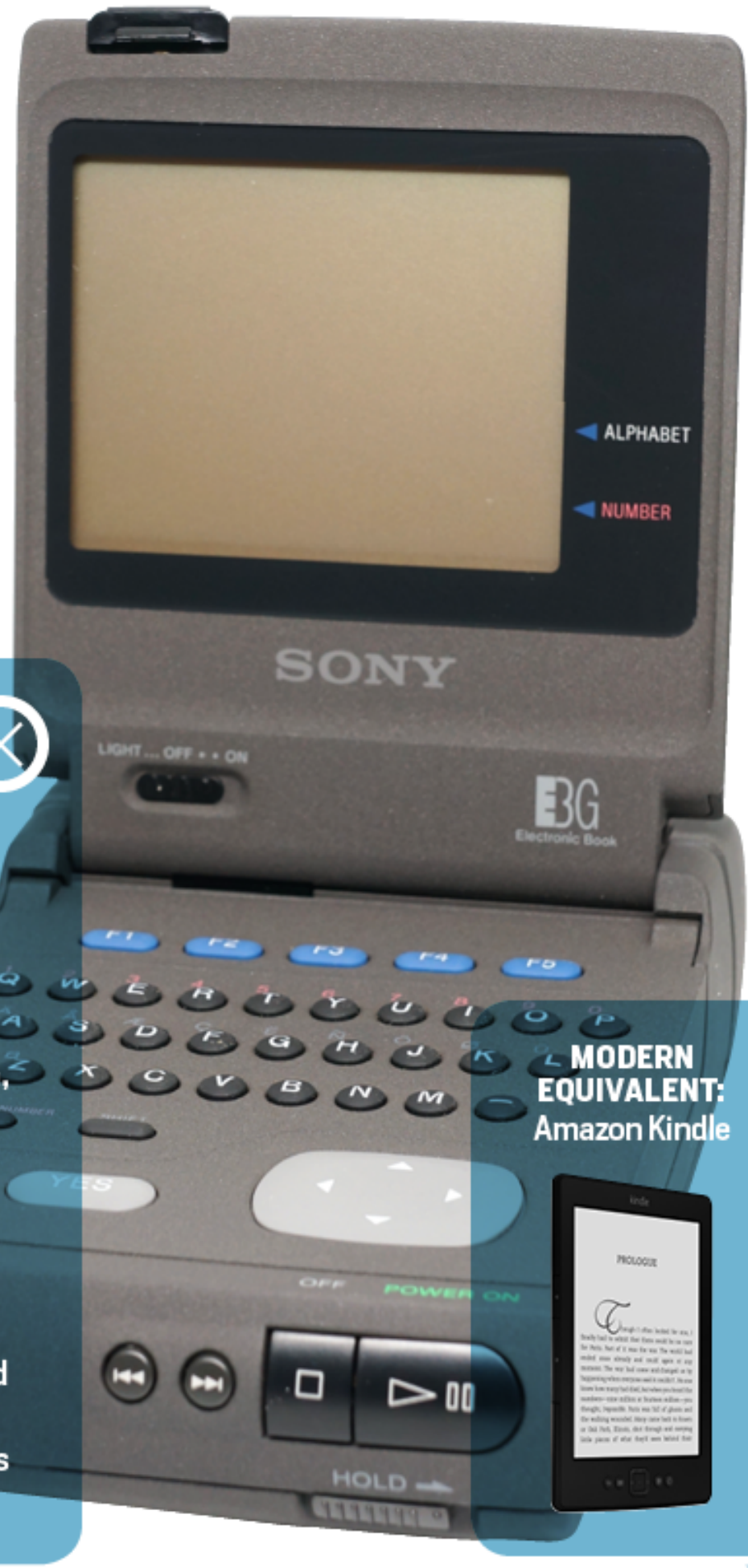
— **Walter De Brouwer / CEO and Founder, Scanadu**

THE STRIP | BY SEAN PRYOR

## WHAT IS THIS?
TOUCH TO FIND OUT


PHOTOGRAPH BY JON TURI

# SONY DATA DISCMAN




In 1991, Sony made a pioneering move into the digital realm when it released its electronic book player, the Data Discman DD-1EX, in the US. A far cry from the lightweight e-readers of today, this portable unit weighed in at about two pounds and was the size of a chunky paperback. Sony had high hopes for the platform, bundling the units with a sampling of discs, each capable of storing up to 100,000 pages of text or 32,000 graphic images. The digital tomes included an encyclopedia, a health reference guide and a translation guide for travelers. Sony even pitched some business uses, such as parts catalogs and price lists for executives and salespeople on the go.

**MODERN EQUIVALENT:**
Amazon Kindle




PHOTOGRAPH BY JON TURI

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| **Sales** | Mandar Shinde, Jami Lawrence |

**AOL, INC.**

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| **Chairman & CEO** | Tim Armstrong |